

## CLAIMS

1. A process for producing cumene, which comprises supplying cumyl alcohol and hydrogen to a dehydration catalyst  
5 to obtain a mixture containing  $\alpha$ -methyl styrene and water produced and hydrogen, and supplying the mixture to a hydrogenation catalyst.

2. The process according to claim 1, wherein the dehydration catalyst is activated alumina.

10 3. The process according to claim 1, wherein the hydrogenation catalyst is a catalyst containing a metal of Group 10 or 11 of the Periodic Table.

4. The process according to claim 3, wherein the metal is palladium or copper.

15 5. The process according to claim 1, wherein the dehydration catalyst and the hydrogenation catalyst are packed in a single fixed-bed flow reactor.

6. A process for producing propylene oxide, which comprises the following steps:

20 oxidation step: a step of obtaining cumene hydroperoxide by oxidizing cumene;

epoxidation step: a step of obtaining propylene oxide and cumyl alcohol by reacting cumene hydroperoxide contained in a cumene solution with propylene in an excess amount in the  
25 presence of a epoxidation catalyst in a liquid phase;

dehydration step: a step of obtaining  $\alpha$ -methyl styrene by dehydrating cumyl alcohol obtained in the epoxidation step in the presence of a dehydration catalyst; and

hydrogenation step: a step of hydrogenating  $\alpha$ -methyl

styrene in the presence of a hydrogenation catalyst to convert into cumene and recycling it to the oxidation step as a raw material, wherein the dehydration of cumyl alcohol and the hydrogenation of  $\alpha$ -methyl styrene obtained by the dehydration  
5 are carried out by a method according to any one of claims 1 to 5.

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